A USE CASE FOR DATA VIRTUALIZATION

How does EDC leverage Denodo within the organization?

Canada

EDC

WHO IS JASON DEL BOSCO?

- 25 years in data in a variety of roles, from software development, systems & business analyst to data architect
- 2013 – 2017 : Sr. Business Analyst / Data Architect with Hewlett Packard Enterprise / DXC, involved with data conversion projects
- 2017 – 2021 : Data Architect with Innovapost, involved with Enterprise Data Warehouse
- 2021 – Current: Sr. Data Architect with EDC, involved with Enterprise Data Platform, lead with respect to Data Virtualization usage (Denodo)

EXPORT DEVELOPMENT CANADA

IS CANADA'S EXPORT CREDIT AGENCY.

For over 75 years, we've helped Canadian companies navigate, manage and take on risk, enabling them to grow and succeed in global markets.

We guide Canadian companies as they navigate the complexities of global markets and support our customers every step of the way.

THEIR SUCCESS IS ULTIMATELY CANADA'S SUCCESS.

OUR PURPOSE:

TO MAKE CANADA AND THE WORLD BETTER THROUGH TRADE.

Our Mission:

We use our unique trade knowledge and financial solutions to develop trade between Canada and other countries, and to enhance Canada's competitiveness in the international marketplace.

OUR SOLUTIONS

We equip Canadian businesses with the tools they need to grow their business with confidence.

FINANCING

We help Canadian companies get access to capital.

INSURANCE

We offer protection that lowers the risk for Canadian companies doing business beyond our borders.

KNOWLEDGE

We provide expertise that enables our customers to make informed decisions and learn more about international markets.

CONNECTIONS

We connect Canadian and international companies to help both parties grow.

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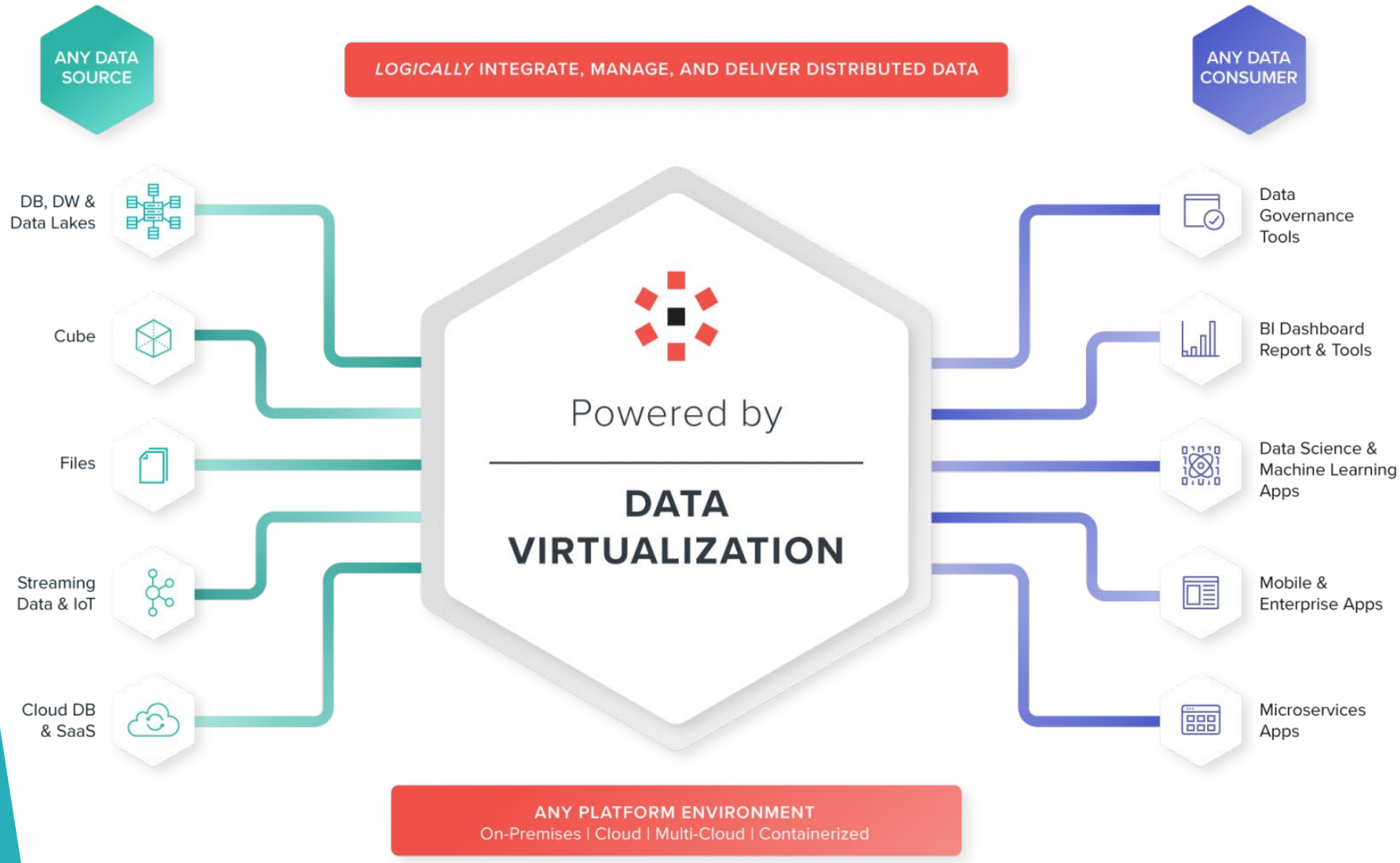
EDC’S DATA CHALLENGES

Like many organizations, we deal with typical data issues, such as:

- A number of legacy systems, some of which are being decommissioned and others being modernized;
- A lack of consistent, source-of-truth datasets;
- A lack of visibility on data lineage, where data is being sourced from;
- A lack of agility in producing data objects for business consumers with traditional ETL solutions

WHAT IS DENODO?

The Denodo Platform, powered by data virtualization, is a logical data integration, data management, and data delivery solution that provides a centralized data access layer that enables all users to find, query, integrate, and securely share datasets, in real time, with breakthrough cost-effectiveness.



WHAT IS DENODO?

LOGICAL DATA LAYER

Data virtualization provides a virtual or logical approach to accessing, managing, and delivering data without replicating it in a physical repository.

DATA INTEGRATION

Data virtualization integrates siloed data across all enterprise systems, regardless of data format, location, or latency.

DATA MANAGEMENT

Data virtualization enables organizations to manage related data with a universal semantic model, providing enhanced metadata and AI/ML functionality, enabling vital data governance.

DATA DELIVERY

Data virtualization delivers and democratizes data in real time leveraging BI and data science tools, a powerful data catalog, and APIs.

WHY DENODO?

- Agility – ability to quickly respond to the business need
- Virtualization – not just storing another copy of data
- Self-service – developers have the ability to work with any dataset they have been provisioned access to

HOW DOES DENODO FIT?

- Connect to a number of disparate data sources
- Develop & expose domain-based virtual databases
- Define Data Contracts using Interface views

HOW DOES DENODO FIT?

Denodo is leveraged within the organization for a number of use cases, primarily focusing around:

- Data preparation & cleansing
- Agile / MVP development
- Application integration use cases

DATA PREPARATION & CLEANSING USE CASES

Our Reporting & Analytics teams and a number of other lines of business leverage Denodo to transform and prepare data for use in a number of PowerBI dashboards & reports.

A number of Virtual Databases in Denodo have been created to house domain-level virtual views from a number of sources, and additional Virtual Databases are used to house views created to answer specific use cases.

DATA PREPARATION & CLEANSING USE CASES

Instead of relying on Data Engineers to make changes to tables in our legacy Datamarts or Enterprise Data Platform, Denodo developers can perform the required transformations based on the business need and quickly produce products that can be used by the business.

DATA PREPARATION & CLEANSING USE CASES

For larger datasets, datasets which have more complex transformations or datasets which are leveraged heavily by downstream views, we can leverage the Denodo Scheduler to strategically cache the output of specific views to improve performance to consumers.

AGILE / MVP DEVELOPMENT USE CASES

As we modernize our data landscape, Denodo allows us to use existing disparate data sources to rapidly respond to business needs. Instead of having Epics and Stories on backlogs, users can work within Denodo to solve their problems and take those solutions back to

AGILE / MVP DEVELOPMENT USE CASES

Our Cybersecurity team leverages a 3rd party service to execute vulnerability testing on various infrastructure, both on-prem and in the cloud.

Leveraging Denodo's ability to consume API data as a source, we are able to create virtual views for a number of APIs and programmatically extract data using simple SQL style queries, and schedule data to be refreshed weekly.

APPLICATION INTEGRATION USE CASES

Denodo allows for the simple publishing of a view in a number of methods (e.g. REST Web Service, SOAP Web Service, ODATA4, and GraphQL), making a set of views and associations available to external applications.

APPLICATION INTEGRATION USE CASES

We can then expose these services (e.g. REST Web Service) via Azure API Management to further abstract the underlying implementation.

APPLICATION INTEGRATION USE CASES

Our FCKYC team had a need to modernize their use of Industry Reference Data. At the time, they were leveraging legacy data sources within a SQL Server Data Warehouse, and there was pushback to continue development on a legacy platform.

As a result, source data was consumed and transformed within Denodo and that output was cached for consumption. The views were exposed via a REST Web Service, and the development team was able to quickly pivot and incorporate this new functionality within days.

APPLICATION INTEGRATION USE CASES

We have some additional use cases where the Denodo Scheduler is leveraged by lines of business to take the output of self-service views and further use these datasets in other processes, such as:

- Delivering the output of a view from Denodo in a CSV format for application consumers, or
- Deliver the output of a view from Denodo directly to a SQL Server target to be used to further enhance datasets

LESSONS LEARNED

Having had Denodo within our environment for several years, there are a number of lessons that we have learned over the years;

- It is worth the effort to create, maintain and govern domain or topic based Virtual Databases
- While Denodo can perform data transformations, it should not be considered as an ETL tool
- The Denodo user community should work together to ensure they are not solving the same problem multiple times, populating metadata into views and leveraging the data catalog
- Not every use case should be implemented in Denodo

Questions?

THANK YOU!

Thank you for coming out and listening to this presentation!

If you have any other questions you'd like to ask, feel free to stop by the Denodo booth to ask myself or any of the Denodo representatives!

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